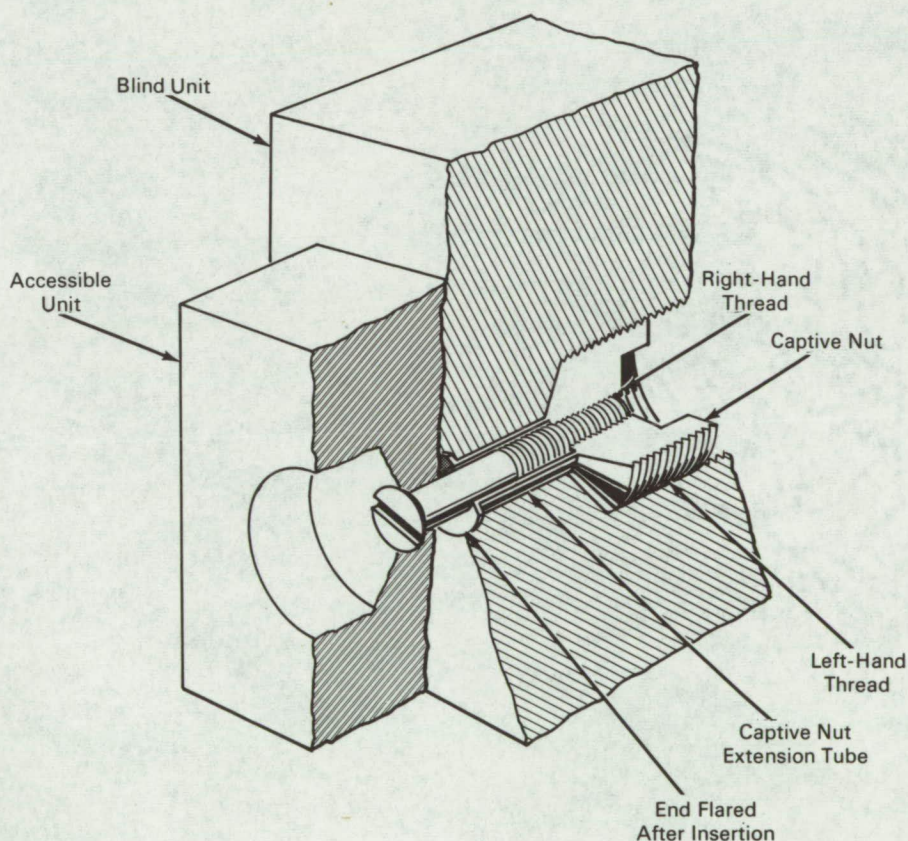


# NASA TECH BRIEF



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## Captive Nut Fastener Securely Joins Brittle Materials



**The problem:** Joining assemblies where the nut location is inaccessible and standard blind fasteners such as toggle bolts cannot be used due to material strength or working space considerations.

**The solution:** Use of an extension-tube captive nut that is secured by left-hand external threads. A right-

hand threaded bolt inserted through the accessible portion of the assembly engages the captive nut to effect joining.

**How it's done:** The extension tube which is an integral part of the captive nut is inserted into an opening in the blind unit. The nut is drawn up tightly by

(continued overleaf)

means of its outer, left-hand threads engaging left-hand threads provided in the blind unit. The end of the extension tube, precut for proper length, is then flared, thus effectively anchoring the nut and preventing it from turning out. A right-hand threaded bolt is inserted through the accessible unit of the assembly to engage the right-hand internal threads of the captive nut. An added degree of positive coupling is attained by the action of the right-hand inner thread working against the left-hand outer thread.

**Notes:**

1. Because the captive nut may be installed under controlled conditions, this fastener is excellent for joining brittle materials.

2. Inquiries concerning this innovation may be directed to:

Technology Utilization Officer  
AEC-NASA Space Nuclear Propulsion  
Office

U.S. Atomic Energy Commission  
Washington, D.C., 20545

Reference: B65-10245

**Patent status:** NASA encourages commercial use of this innovation. No patent action is contemplated.

Source: R.M. Saccocio of  
Westinghouse Astronuclear  
Laboratories under contract to  
Space Nuclear Propulsion Office  
(NU-0008)